

WHAT IS CLAIMED IS:

1           1.     An integrated three phase separator for separation of natural gas, hydrocarbon liquid,  
2     and water or brine, which separator comprises:

3                     a cylindrical vertical separation unit having a top and an opposed bottom;

4                     a cylindrical horizontal separation unit having a pair of opposed ends;

5                     a tubular elbow connection having a pair of ends, one said end connected to said  
6     bottom of said vertical separation unit and another said end connected at one said end of said  
7     horizontal separation unit; and

8                     metering plate means within said tubular elbow connection to retain said natural gas  
9     in said horizontal unit.

1           2.     An integrated three phase separator as set forth in Claim 1 wherein said vertical  
2     separation unit, said horizontal separation unit, and said tubular elbow connection each have the  
3     same diameter.

1           3.     An integrated three phase separator as set forth in Claim 1 wherein said metering plate  
2     means includes a flat plate juxtaposed at an angle to an axis of said vertical separation unit and at  
3     an angle to an axis of said horizontal unit.

1           4.     An integrated three phase separator as set forth in Claim 3 wherein said flat plate is  
2     juxtaposed at approximately a 30° angle to said vertical unit.

1           5.       An integrated three phase separator as set forth in Claim 1 wherein said metering plate  
2 means includes a flat plate extending across a diameter of said tubular elbow connection, and having  
3 a truncated base to permit liquid flow therethrough.

1           6.       An integrated three phase separator as set forth in Claim 1 including a fluid inlet from  
2 a well head into said vertical separation unit.

1           7.       An integrated three phase separator as set forth in Claim 6 wherein said fluid inlet is  
2 tangential to said vertical unit.

1           8.       An integrated three phase separator as set forth in Claim 1 including a natural gas  
2 outlet from said top of said vertical separation unit.

1           9.       An integrated three phase separator as set forth in Claim 5 including a slot in said  
2 metering plate.

1           10.      An integrated three phase separator as set forth in Claim 1 including an  
2 equalizer/condenser line extending between said horizontal unit and said vertical unit to balance gas  
3 pressure in said units.

1           11.      An integrated three phase separator as set forth in Claim 1 including a supply gas  
2 dryer line extending from said equalizer/condenser line.